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Title: Mindfulness for Psychosis Groups; within-session effects on stress and symptom-related distress in routine community care

Short title: Mindfulness for Psychosis

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Mindfulness for Psychosis Groups; within-session effects on stress and symptom-related distress in routine community care

Abstract

Background: There is an emerging evidence base that mindfulness for psychosis is a safe and effective intervention. However, empirical data on the within-session effects of mindfulness meditation was hitherto lacking.

Aims: The aim of the study was to assess the impact of taking part in a mindfulness for psychosis group, using a within-session self-report measure of general stress, and symptom-related distress.

Method: Users of a secondary mental health service (N=34), who experienced enduring psychotic symptoms, took part in an 8-week mindfulness for psychosis group in a community setting. Mindfulness meditations were limited to 10 minutes and included explicit reference to psychotic experience arising during the practice. Participants self-rated general stress, and symptom-related distress, before and after each group session using a visual analogue scale.

Results: Average ratings of general stress and symptom-related distress decreased from pre to post session for all 8 sessions, although not all differences were statistically significant. There was no increase in general stress, or symptom-related distress across any session.

Conclusions: There was evidence of positive effects and no evidence of any harmful effects arising from people with psychotic symptoms taking part in a mindfulness for psychosis session.

Key words: *Schizophrenia, Mindfulness, Meditation, Psychotherapy, Community Health Services*

Introduction

Mindfulness for psychosis

People with distressing psychosis often struggle to cope with distressing voices or beliefs, and frequently get trapped in cycles of either trying to avoid their experiences or getting lost in battling against them (e.g. paranoid rumination, arguing with voices). Mindfulness offers an alternative way of being with psychotic experiences; bringing non-judgemental awareness, acceptance of the present moment and the letting go of struggling or fighting against experiences (Chadwick, 2006). The first meta-analysis of mindfulness for psychosis studies reported data from 7 randomised controlled-trials (RCTs) and 6 uncontrolled trials, including a total of 468 participants (Khoury *et al.*, 2013b). The authors concluded that mindfulness interventions are moderately effective in reducing negative and affective symptoms, and in increasing functioning and quality of life. The estimated effect size in pre-post analyses (12 studies, Hedge's $g = 0.52$) were comparable to those reported for mindfulness-based treatments for other non-psychotic disorders (72 studies, Hedge's $g=0.55$) (Khoury *et al.*, 2013a). Subsequent meta-analyses reached similar conclusions including later additional RCTs (Cramer *et al.* (2016) – 8 RCTS, $n=434$; (Louise *et al.*, 2017) – 10 RCTS, $n=572$). Cramer *et al.* reported moderate evidence for the short-term effectiveness of mindfulness on total psychotic symptoms (5 studies, standardised mean difference=0.46), and positive symptoms (4 studies, standardised mean difference=0.57). Louise *et al.* similarly reported evidence of a significant benefit for mindfulness on total psychotic symptoms, but with a smaller effect size (8 studies, Hedge's $g=0.29$).

Qualitative studies of mindfulness for psychosis have also been conducted within community (Abba *et al.*, 2008, Dennick *et al.*, 2013), inpatient (York, 2007), and early intervention settings (Ashcroft *et al.*, 2012). These studies are informative about the phenomenology of mindfulness for psychosis, and the possible therapeutic processes involved. For example, participants describe the process of deliberately turning towards difficulty, and in doing so, coming to a powerful realisation that they can make an active choice in how to respond to their experiences, on a moment-by-moment basis, and how this can lead to a greater acceptance of themselves, and a sense of identity which is no longer dominated by psychosis (Abba *et al.*, 2008).

Evidence for community groups

The first published study of mindfulness for psychosis described a small uncontrolled trial of group therapy, with service users of secondary mental health services within a community setting (Chadwick *et al.*, 2005). All participants had been experiencing distressing psychosis for at least 2 years (including voices and paranoia). Participants ($n=10$) showed a significant improvement on a general measure of clinical functioning (Clinical Outcomes in Routine Evaluation (CORE); Evans *et al.* (2000)) from pre-post group, and there were no adverse effects arising from the meditation practises. Chadwick and colleagues (2009) went on to conduct a randomised controlled trial, which also showed significant pre-post improvements on both the CORE, and a measure of mindfulness of thoughts and images (Southampton Mindfulness Questionnaire (SMQ); Chadwick *et al.* (2008)). This work was subsequently expanded by Chadwick and colleagues into an intervention for specifically for distressing

voices called Group Person Based Cognitive Therapy (PBCT), which integrates cognitive behaviour therapy for psychosis (CBTp) and mindfulness. Data from nine pilot groups (Dannahy *et al.*, 2011) and a subsequent larger randomised controlled trial of 108 participants (Chadwick *et al.*, 2016) indicated positive benefits on distress associated with voices, and depression. Our approach was also used in a randomised trial showing significant improvement in psychological quality of life when mindfulness groups are added to standard psychiatric rehabilitation for people with psychosis (Lopez-Navarro *et al.*, 2015).

Concerns about potential harms

Evidence from mindfulness for psychosis trials have established the acceptability, safety and feasibility of the approach. However, there are historical concerns about using meditation techniques with people experiencing current psychotic symptoms, or who might be vulnerable to developing them. For example, as far back as the 1970s, a pilot study reported positive benefits of mindfulness meditation with people with mood symptoms including depression and anxiety but cautioned against their use in with people experiencing “*hallucinations, delusions, thinking disorders, and severe withdrawal*” - (p.331, Deatherage (1975). This is important within the broader context of clinicians’ concerns about potential harms for people with psychosis of practising mindfulness and how these might impede wider implementation (Morera *et al.*, 2017). For example, some case studies have reported people, both with and without a previous history of psychosis, experiencing psychotic or manic episodes associated with meditation (Kuijpers *et al.*, 2007, Sethi and Bhargava, 2003, Walsh and Roche, 1979, Yorston, 2001). However, the precipitating events to these episodes are often described as particularly intensive bouts of meditation (of varying schools of meditation), usually in the context of a retreat. A review by Shonin *et al.* (2014) highlighted that none of the meditation practises described would be typical of a mindfulness-based intervention; and additional complex factors associated with retreats such as the effects of sleep deprivation and food restriction were likely to have played a significant role. For example, in the case studies reported by Walsh and Roche (1979), the meditation retreats were described as involving ‘*many hours each day of sitting and walking meditation and total silence, without communication of any kind (even eye contact)*’ - (p.1085), and up to ‘*18 hours of meditation a day*’ - (p.1086) over the course of a 2-week retreat.

No study to date has yet reported data on the short-term effects (i.e. over the course of a single therapy session) of mindfulness for psychosis within a community setting. The aim of this study was to therefore assess the impact of taking part in a mindfulness for psychosis group session, using within-session self-report measures of effects on general stress and symptom-related distress. We hypothesised there would be no statistically significant increase from pre to post session in general stress, or symptom-related distress.

Method

Ethical approval

Data from the community groups were collected as part of a service evaluation project, with R&D approval from the local NHS trust (reference PPF_PSYCHOLO-14-01).

Participants

Participants (N=34) took part in 1 of 5 groups offered to service users of South London community mental health services. There were between 6-8 participants in each group. Service users could self-refer or were referred into the group by care co-ordinators or psychiatrists. All participants had been experiencing psychotic symptoms, including voices and/or delusional beliefs, for at least 2 years prior to the start of the group, and were currently prescribed anti-psychotic medication.

Measures

A self-report visual analogue scale was used, with “bubbles “of increasing sizes representing different degrees along the scale (see supplementary material). This scale has been found to be acceptable to service users, and to be easy to understand and complete, including for service users with cognitive difficulties such as a reduced concentration span (Jacobsen *et al.*, 2011). Participants were asked to rate 1) general stress levels, and 2) distress arising from unwanted thoughts/images/voices on a scale from 1 (“not at all”) - 5 (“extremely”). Ratings were taken at the beginning and end of each group session.

Mindfulness intervention

Each group session was delivered by 2 facilitators, who were senior clinical psychologists, with over 5 years’ experience as mindfulness teachers, specialising in psychosis. As with other cognitive therapies, the mindfulness for psychosis groups were based on a collaboratively-developed formulation, which explicitly identified processes that maintain distress. Group facilitators normalised wanting to block out or avoid our difficult experiences at times; or at the other end of the spectrum, to get caught up in struggling or fighting against them. However, it was explained that a sole reliance on avoidance or fighting with psychotic symptoms often perpetuates distress over the longer-term. The rationale for a mindfulness-based intervention was therefore established as a way to help people develop an alternative way of relating to their experiences. This involved deliberately turning towards the difficult, practising acceptance of what is present just in the moment, and letting experiences come and go in their own time.

The intervention was delivered as 8 weekly 1.5-hour group sessions, and included review of practice over the previous week and two 10-minute guided mindfulness practices. Following modifications outlined by Chadwick et al (2009, 2005), practices were brief, and included frequent guidance, to minimize the likelihood of participants getting lost in psychotic rumination, and referred explicitly to psychotic experiences and reactions to them. Practices included mindfulness of the breath, body scan and mindful movement. Each practice was followed by Socratic dialogue to facilitate reflective learning and metacognitive insights.

This included the nature of experience (e.g. unpleasant psychotic sensations do not stay in awareness permanently) and how reactions to it (e.g. judgement, rumination) maintain distress.

Analysis Plan

Data were analysed using SPSS for Windows 22.0. We used a non-parametric test (Wilcoxon Signed Ranks Test) to analyse pre-post differences in the mean scores for each variable (stress and distress ratings). We used a non-parametric test because there was a degree of skew in the distribution of the data, and the rating scale used might best be conceptualised as ordinal (rankings), rather than a true interval scale. The alpha value for statistical significance was set conservatively at 0.01 to adjust for multiple testing, and all hypothesis tests were two-tailed.

Results

Demographic and clinical characteristics

Demographic and clinical characteristics of the participants are shown in Table 1. The majority of participants had a schizophrenia-spectrum diagnosis. There was a range of length of time participants had been using mental health services. Almost half of participants had been known to services for over 15 years (47%), which reflects the longer-term nature of the difficulties these service users experienced. The ethnic mix of participants reflected the ethnically diverse communities served by the local NHS trust, with 47% of participants coming from a black or ethnic minority background. Participants attended a mean average of 5.5 out of 8 sessions (range 1-7). Although explicit permission to either stop a session or leave a session early if needed was given, no participant ever walked out of a session, or left early.

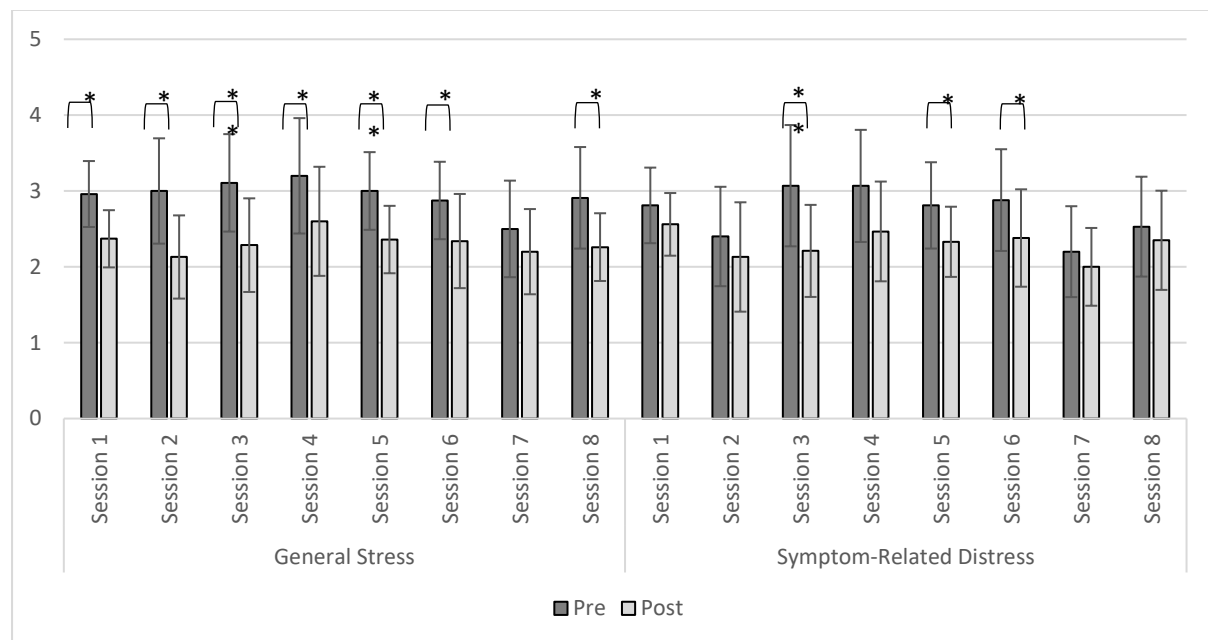
Table 1: Participant Demographic and Clinical Characteristics

	Group Participants (N=34)
Age (mean)	45 (range 25-71, Standard Deviation=11)
Gender	
- Male	15 (44%)
- Female	19 (56%)
Ethnicity	
- White	18 (53%)
- Asian	1 (3%)
- Black	13 (38%)
- Mixed Race	0
- Other	2 (6%)
Diagnosis	
- F20-29 (Schizophrenia Disorder)	27 (79%)
- F31 (Bipolar disorder)	7 (21%)
Years known to mental health services	
- Less than 1 year	0
- 1-5 years	5 (15%)
- 6-10 years	4 (12%)
- 11-15 years	9 (26%)
- More than 15 years	16 (47%)

Stress and distress ratings

As shown in Figure 1, the mean average rating for stress and distress lay between 2 and 3 for most sessions, only exceeding 3 for pre-ratings in sessions 3 and 4. As higher scores indicated greater severity on the scale used (1-5), this indicated a medium level of stress and distress. As the average scores for the group were in the middle of the scale, there was no evidence of an overall ceiling or floor effect. However, this may still have been a factor on an individual basis, for people who either experienced either very high or low levels of perceived stress or distress. Participants used the full range of the scale in most sessions (Table 2: Supplementary material).

Figure 1: Mean stress and distress scores pre-post group by session (Error bars: 95% CI)



Visual inspection of the data showed there was a decrease in general stress, and symptom-related distress, across all sessions (Figure 1). Wilcoxon Signed Ranks Test showed there was a statistically significant reduction in stress for sessions 3 and 5, and for distress for session 3, ($p < 0.01$; Supplementary material -Table 2). In line with our hypotheses, there was no mean increase in stress or distress for any session.

Discussion

The aim of the study was to assess the short-term impact of taking part in a mindfulness for psychosis group session, using within-session measures of effects on general stress, and symptom-related distress. Data from an 8-week community group programme indicated significant benefits of engaging in a mindfulness for psychosis session for people with psychotic symptoms. Average ratings of general stress and symptom-related distress decreased from pre-post session, although not all observed differences were statistically significant. Another key finding was that there was no observed increase in ratings of stress or distress from psychotic symptoms across any session.

These findings are consistent with the results of a small but growing number of mindfulness for psychosis RCTs, which have found no evidence of any adverse events linked to meditation practises. Despite the growing evidence base in the area, clinicians in everyday clinical practice often remain concerned about the appropriateness of mindfulness for psychosis for people experiencing active psychotic symptoms (Chadwick, 2014). This may be due to unfounded concerns that mindfulness meditation would somehow lead to the person becoming “lost” in psychotic symptoms, or that a focus on symptoms such as voices or paranoid voices as they rise in awareness, is unhelpful as it might increase preoccupation with such experiences. These concerns often arise from a misunderstanding of how mindfulness-based approaches work. Chadwick’s model of mindfulness for psychosis is very clear in its intentions and adherence to the underlying attitudinal qualities of mindfulness practice, which include non-judging, acceptance and letting go (Kabat-Zinn, 2005). In this way, we are inviting people with psychotic symptoms to recognise, and step out of, habitual reactions of avoidance or entrenchment which often underpin distress and impairment associated with psychotic symptoms, rather than perpetuating such patterns. Appropriate adjustments are also made to accommodate the needs of the particular clinical group. For example, more frequent guidance that includes reference to psychotic experience helps to provide a firm anchor to the here-and-now for people who may be experiencing intense or frequent voices.

A particular strength of the study reported here is that it took place in the often unpredictable context of frontline clinical services in South London, a demographically diverse area with high rates of psychiatric morbidity. The participants reflected the local population both in terms of demography and morbidity which provides evidence that these interventions are an acceptable adjunct to routine care in NHS Mental Health Trusts. As encouraging as these results are, we would also sound a note of caution that the data presented here are taken from a group therapy delivered by clinical psychologists highly experienced in working with psychosis, who had also undergone substantial additional training as mindfulness teachers, and were in receipt of specialist mindfulness supervision. We recognise that mindfulness for psychosis, like any other therapy, can only be delivered with fidelity if practitioners are appropriately trained and supervised. Therefore, challenges remain in wider dissemination in the NHS in terms of training more clinicians to competency in the approach, as with other mindfulness-based therapies (Rycroft-Malone *et al.*, 2017).

In terms of the limitations of the current study, the “bubbles” scales used were acceptable and understandable to patients with psychosis, who often experience high levels of cognitive

impairment due to various factors. However, the use of a non-standard measure does have other limitations, as we do not have full psychometric data on the scale, particularly in terms of construct validity. We deliberately chose to use a self-report measure, as we were interested in participant's subjective ratings of their own experiences. However, it would perhaps be interesting to compare these subjective ratings with another source of data, for example, biological indicators of emotional arousal such as heart-rate variability (Lumma *et al.*, 2015). The aim of this study was to investigate within-session effects of mindfulness practice. However, the impact on participants of practising mindfulness by themselves between sessions remains unknown. Anecdotally, some participants who took part in our community groups did report practising at home, and no adverse effects were reported. However, we do not have systematic data on rates, types or frequency of home practice in this sample. This is a very important issue to investigate further, as frequent home practice has been linked to better outcomes in mindfulness for depression studies (Crane *et al.*, 2014). Further work is needed to highlight both facilitators and barriers to home practice for people with psychosis. It would also be helpful to know more about the factors which might affect an individual's experience of a particular group session – for example, how do pre and post measures relate to frequency of voices or paranoia.

Finally, in terms of other further research, there is a clear need to extend these findings by looking at within-session effects of mindfulness for psychosis in acute settings, where mode of delivery is by necessity adapted to the needs of participants experiencing a current crisis (see Jacobsen *et al.* (2016)).

In conclusion, using an adapted mindfulness protocol for people experiencing psychotic symptoms, delivered by appropriately qualified and experienced therapists, we found no indication of any harmful effects. We observed an indication of potential positive effects on general stress and symptom-related distress, which would warrant further testing within a larger sample, ensuring adequate statistical power.

Conflicts of interests: The authors declare they that have no conflict of interest with respect to this publication.

Financial support: This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Ethical standards: The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, and its most recent revision.

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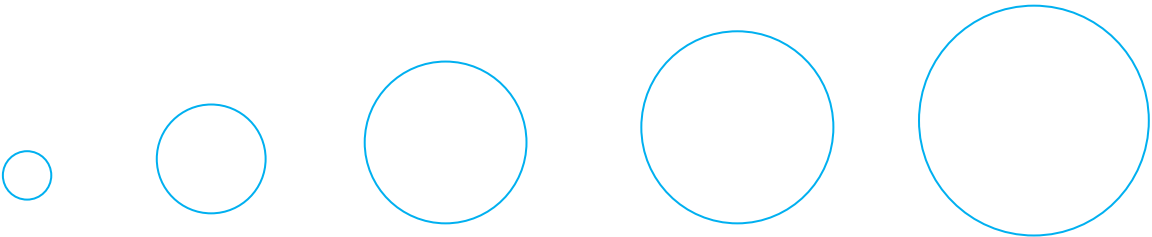
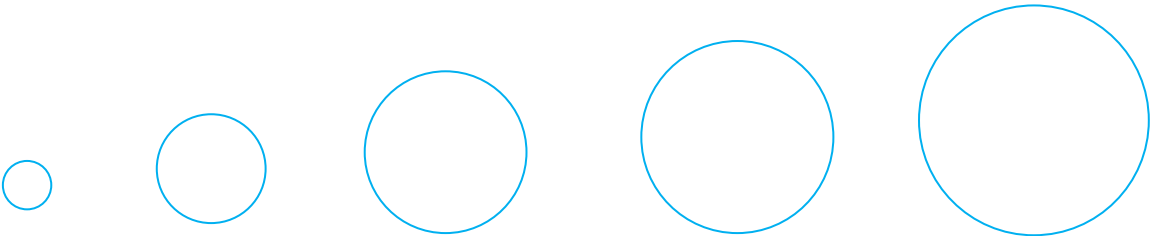
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Supplementary MaterialTable 2: Median scores and Wilcoxon Signed Ranks Test by group session (**Sig. differences in bold, p=0.01**)

		Range	Median	Wilcoxon Signed Ranks Test
Session 1 (N=26)	Pre-Stress	1-5	3	Z= -2.516, p=0.012
	Post-Stress	1-4	2.75	
	Pre-Distress	1-5	3	Z= -1.292, p=0.196
	Post-Distress	1-5	2.75	
Session 2 (N=15)	Pre-Stress	1-5	3	Z= -2.588, p=0.010
	Post-Stress	1-4	2	
	Pre-Distress	1-5	2	Z= -1.155, p=0.248
	Post-Distress	1-5	2	
Session 3 (N=14)	Pre-Stress	1-4	3.5	Z= -2.970, p=0.003
	Post-Stress	1-4	2	
	Pre-Distress	1-5	3	Z= -2.640, p=0.008
	Post-Distress	1-4	2	
Session 4 (N=15)	Pre-Stress	1-5	3	Z= -2.264, p=0.024
	Post-Stress	1-5	3	Z= -1.549, p=0.121
	Pre-Distress	1-5	3	
	Post-Distress	1-4	2	
Session 5 (N=22) ¹ Data missing for 1 participant for distress rating (N=21)	Pre-Stress	1-5	3	Z= -2.967, p=0.003
	Post-Stress	1-4	2	
	Pre-Distress ¹	1-5	3	Z= -2.140, p=0.032
	Post-Distress ¹	1-4	2	
Session 6 (N=16)	Pre-Stress	1-5	3	Z= -1.977, p=0.048
	Post-Stress	1-4	2.5	
	Pre-Distress	1-5	3	Z= -1.999, p=0.046
	Post-Distress	1-4	2	
Session 7 (N=15)	Pre-Stress	1-4	2	Z= -1.786, p=0.074
	Post-Stress	1-4	2	
	Pre-Distress	1-4	2	Z= -0.905, p=0.366
	Post-Distress	1-4	2	
Session 8 (N=17)	Pre-Stress	1-5	3	Z= -2.230, p=0.026
	Post-Stress	1-4	2	Z= -0.905, p=0.366
	Pre-Distress	1-4	2	
	Post-Distress	1-5	2	

Supplementary Material

Self-Report Visual Analogue Scales (Bubbles)

Please tick the circle that most accurately describes your view	
1. How stressed do you feel right now?	
<div></div>	
Not at all	Extremely
<div></div>	
2. How distressing are any unwanted thoughts/images/voices right now?	
<div></div>	
Not at all	Extremely
<div></div>	